Uncertainty analysis in shear strength of soils and its application to stability of slope problems

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Abstract

The method of derived distributions is used to develop probabilistic models for predicting the shear strength of soils and safety factor for slope stability problems in tterms of uncertain values for the soil cohesion and angle of internal friction. The shear strength and safety factor for slope stability problems are satisfactorily described by the normal distribution. Finally, graphs are developed to estimate shear strength ratio and safety factor in terms of the cohesion ratio, cohesion and the angle of internal friction.